

WHAT IS CLAIMED IS:

1 1. A priority data transfer method comprising the steps
2 of: determining the stepwise priority level of collided packet;
3 and resending the collided packet based on the priority level.

1 2. A priority data transfer method for a communication
2 system using random access control, said priority data transfer
3 method comprising the steps of:

4 detecting collision of a send packet against other packet
5 on a transmission line (a collision detection step);

6 upon the detection of the collision of the packet against
7 other packet in the collision detection step, generating a
8 random number (a random number generation step);

9 judging the priority level of the send packet (a priority
10 level judging step);

11 generating a delay time, which elapses until the send
12 packet is resent, based on the random number generated in the
13 random number generation step and the priority level of the
14 send packet judged in the priority level judging step (a delay
15 time generation step); and

16 resending the packet after the elapse of the delay time
17 generated in the delay time generation step.

1 3. The priority data transfer method according to claim 2,
2 wherein:

3 a hop count recording field for recording a hop count as
4 a measure of the priority level of the send packet is provided
5 in the send packet; and

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6 in judging the send packet priority level in the priority
7 level judging step, the priority level of the send packet is
8 judged based on the hop count recorded in the hop count
9 recording field.

1 4. The priority data transfer method according to claim 3,
2 wherein, in the delay time generation step,

3 the random number generated in the random number
4 generation step is multiplied by a value obtained by
5 subtracting a value proportional to the hop count from 1 (one)
6 to generate the delay time, and

7 the packet having a larger hop count recorded in the hop
8 count recording field is preferentially sent.

1 5. The priority data transfer method according to claim 2,
2 wherein:

3 a priority value recording field for recording a priority
4 value as a measure of the priority level of the send packet is
5 provided in the send packet; and

6 in judging the send packet priority level in the priority
7 level judging step, the priority level of the send packet is
8 judged based on the priority value recorded in the priority
9 value recording field.

1 6. The priority data transfer method according to claim 5,
2 wherein, in the delay time generation step,

3 the random number generated in the random number
4 generation step is multiplied by a value proportional to the

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5 priority value of the send packet to generate the delay time,
6 and

7 the packet having a higher priority level recorded in the
8 priority value recording field is preferentially sent.

1 7. The priority data transfer method according to claim 5
2 or 6, wherein the priority level of the send packet increases
3 with decreasing the priority value.

1 8. The priority data transfer method according to claim 2,
2 wherein:

3 the send packet has
4 a send data length recording field for recording the
5 length of send data as a measure of the priority level of the
6 send packet, and
7 a continued data recording field for indicating whether
8 continued data of the send packet is present or absent, and
9 in judging the send packet priority level in the priority
10 level judging step, the priority level of the send packet is
11 judged based on the send data length and the continued data.

1 9. The priority data transfer method according to claim 8,
2 wherein, in the delay time generation step,

3 the random number generated in the random number
4 generation step is multiplied by a value obtained by
5 subtracting a value proportional to the data size from 1 (one),
6 and, when the continued data is present, in addition, the
7 obtained value is multiplied by a predetermined value to

8 generate a delay time, and
 9 the packet having a larger data size recorded in the send
 10 data length recording field is preferentially sent, and
 11 when the data size is identical, the packet, wherein
 12 continued data is present in the continued data recording field,
 13 is preferentially sent.

1 10. The priority data transfer method according to claim
 2 2, wherein the send packet has
 3 a hop count recording field for recording a hop count as
 4 a measure of the priority level of the send packet, and
 5 a priority value recording field for recording a priority
 6 value as a measure of the priority level of the send packet,
 7 and
 8 in judging the send packet priority level in the priority
 9 level judging step, the priority level of the send packet is
 10 judged based on the hop count and the priority value.

1 11. The priority data transfer method according to claim
 2 10, wherein, in the delay time generation step,
 3 the random number generated in the random number
 4 generation step is multiplied by a value proportional to the
 5 priority value and then by a value obtained by subtracting a
 6 value proportional to the hop count from 1 (one), whereby the
 7 delay time is generated, and
 8 the packet having a higher priority level and the packet
 9 having a larger hop count are preferentially sent.

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1 12. The priority data transfer method according to claim
2 10 or 11, wherein the priority level of the send packet
3 increases with decreasing the priority value.

1 13. The priority data transfer method according to any
2 one of claims 1 to 12, wherein the communication system is a
3 radio communication system.

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